

REMARKS

The last Office Action has been carefully considered.

It is noted that claims 1, 4-5, 8-11 and 14 are rejected under 35 U.S.C. 102(b) over the patent to Peter.

Claims 12-13 are rejected under 35 U.S.C. 103(a) over the patent to Peter in view of the patent to Pierson.

Claim 13 is rejected under 35 U.S.C. 112.

At the same time, the Examiner indicated that claims 2-3 and 6-7 are not rejected over the art.

With the present communication applicant has canceled claims 1, 5, 9, 11, 12, and 14 and submitted two new independent claims 15 and 16, together with dependent claims 17-20. Claims 2-4 have been amended to depend on claim 15, claims 6-8 have been amended to depend on claim 16, claim 10 has been amended to depend on claim 17, and claim 13 has been amended to depend on claim 19.

In connection with the Examiner's indication of the allowability of some claims, applicant has submitted claims 21, 22, 23, and 24 which contain the subject matter of claims 2-3 and 6-7. It is believed that these claims are now in allowable condition.

As for claim 13, this claim has been amended in view of the Examiner's comments. If however the Examiner feels that this claim is still not sufficiently definite, he is respectfully requested and authorized to cancel this claim.

It is respectfully submitted that the new features of the present invention as defined in claims 15 and 16 are not disclosed in the references and can not be derived from them as a matter of obviousness.

The Examiner is correct in stating that Peter discloses a method and an apparatus for connecting two workpieces by ultrasonic welding and a means for controlling the welding process by generating switch-off signals on the basis of at least one state parameter, e.g. the welding energy and welding time. It is, however, to note that the Peter patent and the present invention particularly distinguish from each other by the kind of use the state parameter. While Peter directly uses the time and the

energy of welding by using setting and limit values therefor, the present invention indirectly uses such state parameters which are able to detect physical contact between a sonotrode surface and a workpiece (Fig. 3) or between two workpieces (Fig. 7). The following is to point out in this respect.

The method and apparatus disclosed in the patent to Peter according to Fig. 1 has two counters 94 and 114, the one being used for energy counting and the other being used for time counting. The counting of energy is compared with a (normal) setting value 104 and a given maximum value or energy limit 98. The counting of time is compared with a (normal) setting value 122 and a maximum value or time limit 116. In accordance with Fig. 4 and the disclosure at column 5, line 35 through column 6, line 27, switch-off signals for the welding process are produced by means of gate 110 if both energy and time reach at least the setting values (points E, G, and J in Fig. 4). Further, an alarm signal is developed by means of signal lamp 136 if either the one or the other of the state parameters (i. e. energy or time) reaches the limit value (e.g. at D or H) before the respective other state parameter reaches the setting value. It is thus possible to reject welds according to curves A and C and to accept welds according to curve B (column 5, lines 12-14).

It follows from the above that the welding process according to Peter is not controlled in a manner to switch-off the ultrasonic power as long as the weld is good or to control the ultrasonic power such that the weldings achieved are good. Contrary, the switch-off signals generated by means of gate 110 are even generated if the weldings are not acceptable, and it is then decided by means of the signal lamp 136 which of the welds are acceptable and which welds are not acceptable. Thus, a lot of waste may occur.

Contrary to this, the present invention aims at a control of the welding in such a manner that the welding process is terminated as long as the welds are acceptable. The invention starts from the recognition that the welding process should be terminated when a respective surface 32 of the sonotrode substantially makes contact with a respective surface 36 of the workpieces 34 or when surfaces 55, 56 of both respective workpieces 53, 54 come into contact with each other (see e.g. page 4, ultimate paragraph, page 9, first and second paragraph and page 12, first paragraph of the specification of the present application). Because it is not easy to determine the exact moment at which both surfaces make contact by means of respective sensors, the invention further suggests to use state parameters of the welding circuitry for generating switch-off signals. This is e.g.

disclosed at page 9, ultimate paragraph and page 10, first and second paragraphs of the specification). Thus, a remarkable change e. g. in the energy versus time curve (Fig. 4) is used as a measure for showing that the respective surfaces have substantially made contact with each other, and it is supposed that all welds are acceptable as long as the welding process is determined as soon as the signals which are characteristic for such contact occur.

New claims 15 and 16 define the differences between the Peter reference and the present invention. It follows therefrom that it is not only the respective state parameter which controls the welding process but particularly the mechanical contact between the respective surfaces (see also at page 12, lines 14-19 with respect to the embodiment of Fig. 7). Therefore, the invention according to new claims 15 and 16 clearly distinguishes over the Peter patent.

With respect to the other reference to Pierson the Examiner argues that it would have been obvious to use rivet weld materials, as taught by Pierson, in the method and apparatus of Peter. That is not denied. It is, however, to point out in this respect that the rivet weld materials of Pierson can not help to solve the problem underlying the present invention. Even if

the materials of Pierson are used in the Peter method and apparatus, this would not lead to another overall concept. This means that also with the materials of Pierson it would be necessary to distinguish between acceptable and not acceptable weldings in the sense of the Peter patent. It is, therefore, believed that Peter also in view of Pierson can not anticipate or make obvious the invention as claimed in new claims 15 and 16.

The original claims were rejected as anticipated by the patent to Peter. With respect to anticipation rejection, applicant wishes to cite the following decisions:

Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984) in which it is stated:

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

Definitely, the prior art references do not disclose each and every element of the claimed invention arranged as in the claims.

In Row v. Dror, 42 USPQ 2d 1550, 1553 (Fed. Cir. 1997) it was stated:

"A prior art reference anticipates a claim only if the reference discloses, either expressly or inherently, every limitation of the claim. .. Absence from the reference of any claimed element negates anticipation."

It is therefore believed to be clear that the anticipation rejection of the original claims over the patent to Peter should be considered as no longer tenable with respect to claims 15 and 16 and should be withdrawn.

As for the rejection based on the obviousness, it is respectfully submitted that the references do not teach the new features of the present invention as now defined in claims 15 and 16. In order to arrive at the applicant's invention from the teachings of the references, the references have to be fundamentally modified.

However, it is known that in order to arrive at a claimed invention, by modifying the references the cited art must itself contain a suggestion for such a modification. This principle has been consistently upheld by the U.S. Court of Customs and Patent Appeals which, for example, held in its decision in re Randol and Redford (165 USPQ 586) that

Prior patents are references only for what they clearly disclose or suggestion; it is not a proper use of a patent as a reference to modify its structure to one which prior art references do not suggest.

Definitely, the references do not contain any hint or suggestion for such modifications.

As explained herein above, the present invention as defined in claims 15 and 16 provide for the highly advantageous results which can not be accomplished by the solutions proposed in the references. It is well known that in order to support a valid rejection the art must also suggest that it would accomplish applicant's results. This was stated by the Patent Office Board of Appeals, in the case *Ex parte Tanaka, Marushima and Takahashi* (174 USPQ 38), as follows:

Claims are not rejected on the ground that it would be obvious to one of ordinary skill in the art to rewire prior art devices in order to accomplish applicants' result, since there is no suggestion in prior art that such a result could be accomplished by so modifying prior art devices.


In view of the above presented remarks and amendments, it is believed that claims 15 and 16 should be considered as patentably distinguishing over the art and should be allowed.

As for the dependent claims, these claims depend on the independent claims, and they share their presumably allowable features, and therefore it is respectfully submitted that they should be allowed as well.

Reconsideration and allowance of the present application is most respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 631-549-4700).

Respectfully submitted,



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